Patent claims

1.   A method for signal transmission via a radio
interface in a radio communications system, which
5   -   uses a subscriber separation method to distinguish
between signals, with a radio channel being
defined at least by a frequency band (B) and a
connection-specific fine structure (c),
in which
10 -   at least one radio channel is assigned for signal
transmission between a first radio station (BS)
and a second radio station (MS),
-   at least one signal is transmitted via at least
two transmission paths,
15 -   at least one characteristic value (RXLEV, RXQUAL,
ta, C/I) relating to the transmission conditions
on the radio interface is determined for each
transmission path,
-   a control signal (stsig) is derived from a
20   comparison of the mutually corresponding
characteristic values (RXLEV, RXQUAL, ta, C/I), by
means of which control signal (stsig) the
transmission path is selected specifically for the
radio channel for transmitting a subsequent
25   signal, where in the situation where any
difference between the characteristic values
(RXLEV, RXQUAL, ta, C/I) does not exceed a
predetermined threshold value, a transmission path
is in each case selected on a periodically
30   changing basis, so that at least two successive,
decorrelated signals are transmitted via different
transmission paths.

2.   The method as claimed in claim 1, in which
-   the signal is sent by the second radio station
35   (MS) and is received via at least two antenna
devices (A1, A2) of the first radio station (BS)
using diversity reception,

- the characteristic values (RXLEV, RXQUAL, ta, C/I) are determined from the signal received by the respective antenna device (A1, A2), and

- the control signal (stsig) which is derived from the comparison of the mutually corresponding characteristic values (RXLEV, RXQUAL, ta, C/I) is used to actuate a switching device (UE) which switches a subsequent signal specifically for the radio channel to one of the antenna devices (A1, A2) of the first radio station (BS).

3.   The method as claimed in claim 1, in which the signal is transmitted, separated in time, via in each case one transmission path.

4.   The method as claimed in claim 3, in which
- the signal which is separated in time is sent by in each case one antenna device (A1, A2) of the first radio station (BS) and is received by the second radio station (MS),

- the characteristic values (RXLEV, RXQUAL, ta, C/I) are determined from the respectively received signal, and

- the control signal (stsig) is derived from the comparison of the mutually corresponding characteristic values (RXLEV, RXQUAL, ta, C/I) and is used to actuate a switching device (UE) which switches a subsequent signal specifically for the radio channel to one of the antenna devices (A1, A2) of the first radio station (BS).

5.   The method as claimed in claim 4, in which the specific characteristic values (RXLEV, RXQUAL, ta, C/I) [lacuna] transmitted to the first radio station (BS), and the control signal (stsig) is derived from them.

6.   The method as claimed in claim 4, in which the control signal (stsig) is derived in the second radio station (MS) and is transmitted to the first radio station (BS).

7.   The method as claimed in claim 5 or 6, in which

changed periodically and in synchronism with the time protocol of the subscriber separation method.

14. The method as claimed in a preceding claim, in which
the transmitted signals are received in the first radio station (BS) and/or in the second radio station (MS) using a joint detection method.

15. The method as claimed in a preceding claim, in which a reception level, a bit error rate and/or a value proportional to the signal delay time (ta) between the first radio station (BS) and the second radio station (MS), and/or a signal-to-noise ratio is defined as the characteristic value (RXLEV, RXQUAL, ta, C/I).

16. A radio station (BS, MS) for signal transmission via a radio interface in a radio communications system, which

- uses a subscriber separation method to distinguish between signals, in which a radio channel is defined at least by a
  frequency band (B) and a connection-specific fine structure (c),

having

- at least one antenna device (A1, A2) for receiving and/or sending at least one signal which is transmitted via at least two transmission paths,
- an evaluation device (AW) for determining at least one characteristic value (RXLEV, RXQUAL, ta, C/I) relating to the transmission conditions on the radio interface for each transmission path,
- a control device (SE) for deriving a control signal (stsig) from a comparison of the mutually corresponding characteristic values (RXLEV, RXQUAL, ta, C/I), and from a comparison of any difference between the characteristic values (RXLEV, RXQUAL, ta C/I) with a predetermined threshold value, and
- a switching device (UE) which is actuated by the control signal (sig) and selects the transmission

path specifically for the radio channel for transmitting a subsequent signal, where, in the situation where the difference between the characteristic values (RXLEV, RXQUAL, ta, C/I) does not exceed the predetermined threshold value, the switching device (UE) in each case selecting a transmission path on a periodically changing basis, so that at least two successive, decorrelated signals are transmitted via different transmission paths.

17. The radio station (BS, MS) as claimed in claim 16,

which is designed as a base station in a mobile radio system.

18. The radio station (BS, MS) as claimed in claim 16,

which is designed as a mobile station in a mobile radio system.

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Abstract

Method and radio station for signal transmission in a
radio communications system

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    In the method for signal transmission via a
radio interface in a radio communications system, at
least one radio channel is assigned for signal
transmission between a first and a second radio
10 station, and at least one signal is transmitted via at
least two transmission paths. At least one
characteristic value relating to the transmission
conditions on the radio interface is determined for
each transmission path. A control signal is derived
15 from a comparison of the mutually corresponding
characteristic values, by means of which control signal
the transmission path is selected specifically for the
radio channel for transmitting a subsequent signal.

20 Figure 3

Figure captions:

nein = no

ja = yes